

FTorch: A library to couple PyTorch ML models with Fortran climate models

AI for Climate & Nature Community Day

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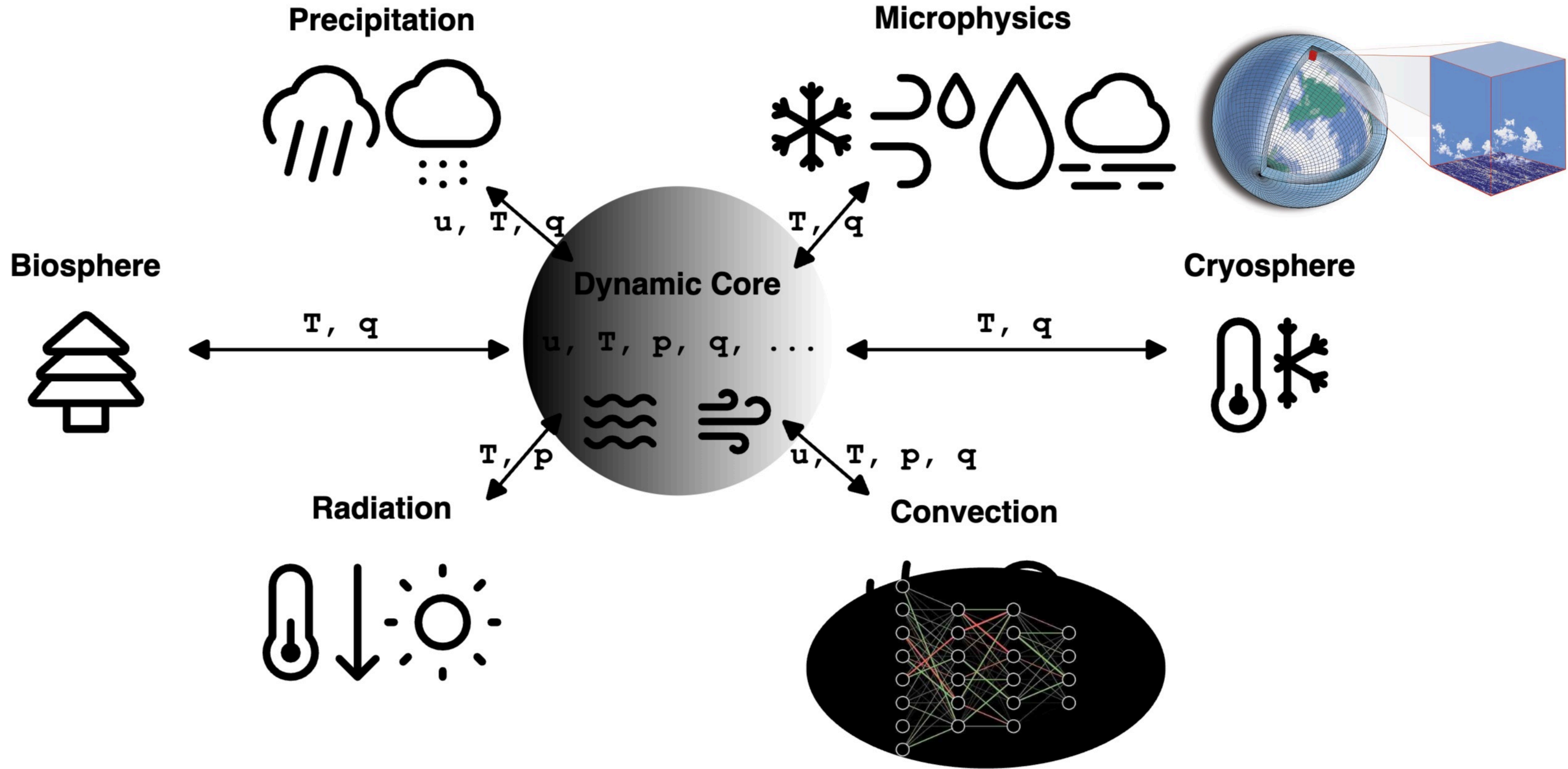


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Motivation : Hybrid modeling



Neural Net by 3Blue1Brown under fair dealing.
Globe grid with box by Caltech under Fair use.
Climate components diagram courtesy of Jack Atkinson.

Facilitating hybrid modeling with FTorch

Many weather and climate models run on code written in Fortran

Today's AI research happens primarily in Python.



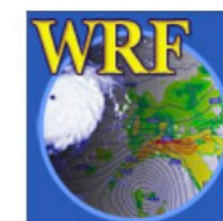
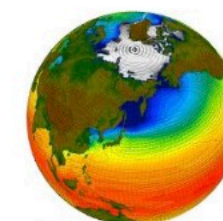
Atkinson et al., (2025)



- Language interoperoperation
- Computationally efficient
- Focus on ease of use and familiarity



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Collaborations: VESRI and beyond



Book a Code Clinic

- [DataWave CAM-GW](#): Neural net parameterizations of gravity waves in CAM
- [MiMA-ML](#): Found online behavior diverges from offline for nearly-identical offline gravity waves models. [Mansfield and Sheshadri \(2024\)](#)
- [ICON](#): ML convection parameterizations work best when causal relations are eliminated. [Heuer et al. \(2023\)](#)
- [GloSea6](#): Replaced BiCGStab solver with ML to speed up forecasting. [Park and Chung \(2025\)](#)